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Cole et al.

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(54) **ENDOSCOPIC STAPLING DEVICES**

(56) **References Cited**

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U.S. PATENT DOCUMENTS

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1,408,865 A 3/1922 Codwell
3,663,965 A 5/1972 Lee et al.
(Continued)

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FOREIGN PATENT DOCUMENTS

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AU 629664 2/1991
CH 680263 A5 7/1992
(Continued)

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International Search Report from PCT Patent Application No. PCT/US2008/008726 mailed Oct. 16, 2008.

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(57) **ABSTRACT**

Described herein are endoscopic staplers and methods used to apply one or more fasteners to body tissue. In one embodiment, a fastener-applying device, which is preferably a stapler, is passed transorally into the stomach to plicate stomach tissue by engaging tissue from inside the stomach and drawing it inwardly. In the disclosed embodiments, the tissue is drawn into a tissue chamber, causing sections of serosal tissue to be positioned facing one another. The disclosed staplers allow opposed sections of tissue to be moved into contact with another, and preferably deliver staples for maintaining contact between tissue sections at least until serosal bonds form. Each of these steps may be performed wholly from the inside of the stomach and thus can eliminate the need for any surgical or laparoscopic intervention. After one or more plications are formed, medical devices may optionally be coupled to the plication(s) for retention within the stomach.

18 Claims, 22 Drawing Sheets

